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[54] RETINOIC ACID RECEPTOR COMPOSITION

[75] Inventors: **Ronald M. Evans**, La Jolla; **Estelita S. Ong**; **Prudimar S. Segui**, both of San Diego; **Catherine C. Thompson**, La Jolla; **Kazuhiko Uemsono**, San Diego, all of Calif.; **Vincent Giguere**, Etobicoke, Canada

[73] Assignee: **The Salk Institute for Biological Studies**, San Diego, Calif.

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[58] **Field of Search** 536/27; 435/69.1, 69.7, 435/252.3, 320.1; 530/350

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Primary Examiner—David L. Lacey
Assistant Examiner—John D. Ulm
Attorney, Agent, or Firm—McCubbrey, Bartels, Meyer & Ward

[57] **ABSTRACT**

A novel retinoic acid receptor is disclosed. The novel receptor is encoded for by cDNA carried on plasmid phRAR1, which has been deposited with the American Type Culture Collection for patent purposes. Chimeric receptor proteins are also disclosed. The chimera are constructed by exchanging functional domains between the glucocorticoid, the mineralocorticoid, the estrogen-related, the thyroid and the retinoic acid receptors. In addition, a novel method for identifying functional ligands for receptor proteins is disclosed. The method, which takes advantage of the modular structure of the hormone receptors and the idea that the functional domains may be interchangeable, replaces the DNA-binding domain of a putative novel receptor with the DNA-binding domain of a known receptor such as the glucocorticoid receptor. The resulting chimeric construction, when expressed in cells, produces a hybrid receptor whose activation of a ligand-(e.g., glucocorticoid) inducible promoter is dependent on the presence of the new ligand. The novel method is illustrated in part by showing that the ligand for the new receptor protein is the retinoid, retinoic acid.

14 Claims, 12 Drawing Sheets